

Bishop (S. S.)

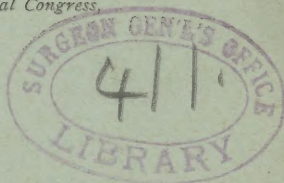
Imperforate Auditory Canals.

BY

SETH S. BISHOP, M.D.,

SURGEON TO THE ILLINOIS CHARITABLE EYE AND EAR INFIRMARY,
CHICAGO, ILL.

*Read before the Tenth International Medical Congress,
at Berlin.*



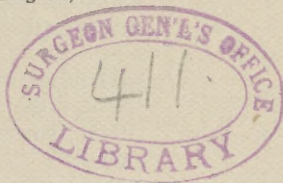
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IMPERFORATE AUDITORY CANALS.

American medical books on the ear contain so little on the subject of congenital and traumatic anomalies of the external auditory canal, that it seems fair to infer that they are of uncommon occurrence in this country.

Only the following four cases of complete and permanent imperviousness of the external meatus have come under my observation during a practice of fourteen years, eight of which have afforded me quite a respectable experience in hospital and dispensary work.

Case 1 was a man 32 years old, who applied for treatment August 15, 1883. Several years previously he had been run over by a railroad train, that severed the auricle from the head. The surgeon in attendance is said to have had no hopes of the man's recovery, but sewed the auricle to the side of the head, to make the subject appear more presentable at his funeral. The result was that union of the parts took place in such a manner as to completely close the external auditory canal, and deprive the patient of any use of that ear. However, the fact that the auditory nerve had retained its integrity was established by a careful application of the hearing tests. I therefore cut away the scar tissue sufficiently to obtain a channel of nearly the natural size. There was only a slight discharge following the opera-

tion, and when the patient left the city for his home two weeks later, his hearing in that ear was good for ordinary conversation.

The result showed that the drum and auditory nerve had been uninjured by the accident, and nothing was needed to restore the usefulness of the organ beyond opening the door for the admission of sound.

Case 2.—A girl 8 weeks old was brought to my clinic October 10, 1885. There was a congenital deformity of one auricle, and absence of the external auditory meatus of the same ear. The auricle was rudimentary, and doubled forward upon itself. It appeared shrunken and pinched, and had a large, hard nodule and several indentations in that part of the helix that corresponds to the key-stone of an arch.

It is interesting to note, in this connection, that the mother attributed the deformity of the auricle to the fact that, about the fifth month of gestation, her elder child bit the mother's ear severely, at just that point that corresponds to the greatest auricular deformity in the baby.

At the point where the canal ought to have been, there was a depression or cul-de-sac that yielded to pressure, and imparted to the touch an impression as if there were an opening in the bone beneath.

Four months later, careful tests led me to believe that the child could hear with that ear. I operated to correct, as far as possible, the deformity of the auricle, and to ascertain if there were any bony meatus. On cutting down into the cul-de-sac where the canal should have been, I found nothing but a depression in the bone. No bony canal could be found, and I did not consider that further operative interference would be justifiable. However, I maintained a sufficient opening to

give quite a respectable appearance of an external meatus.

Case 3.—An infant 14 months old, healthy and apparently normal, except in respect to one ear. There was no opening where the external canal should have been, and, although the patient appeared to hear on that side, the parents were unwilling that an exploratory opening should be made. I saw the case several years ago, but have never heard from it since.

Case 4.—Locomotive engineer, 32 years old, was referred to me through the courtesy of Dr. Fitch, of Rockford, Ill. When 3 years old he was run over by a wagon, that detached the auricle and tore off part of the cheek. The auricle was stitched over the meatus, and completely closed it with dense fibrous tissue. The patient stated that he had never since been able to hear with that ear, but the tests showed that the nerve was sensitive to sound.

About ten years ago, he suffered intense pain in the ear for two weeks. This was followed by a purulent discharge from a pin-hole perforation in the adventitious tissue at the highest point of the mouth of the external meatus. The discharge had continued ever since, being copious and malodorous. The exit for pus was so minute that accumulations produced considerable pain. At such times he pressed above and in front of the ear, and alternately pulled and pushed the auricle in a sort of pumping process, to work the pus out. He succeeded in this manner, and by the aid of the Valsalvian experiment, in evacuating the pus cavities.

I operated by means of the paracentesis needle, followed by a triangular-shaped bistoury. The meatus was filled with tough cicatricial tissue for about three-fourths its depth. After opening up

the canal and cauterizing it with chromic acid, I inserted a vulcanized rubber tube, and retained it in position by antiseptic dressings.

After the operation he could hear my watch 1 inch, and ordinary conversation 11 feet distant. After several treatments with the Eustachian catheter and external applications, the patient resumed his occupation. When he returned again the canal had contracted, and granulations had extruded the rubber tube by one-half its original insertion. Under a 10 per cent. solution of cocaine I curetted and cauterized the canal, and recovered the ground lost. Subsequently, however, the same experience was repeated, and the canal was allowed to close; but by this time the discharge had diminished to a few drops in the twenty-four hours, and the foul smell had disappeared.

I had already begun dilating the old perforation. Through this I could pass a probe upward into the mastoid cells, and inward parallel to the roof of the external meatus, to the tympanic attic. I proposed a more radical operation for the excision of all the occluding tissue, which would enable me to discover and remove any carious bone that might be present; but he was so well satisfied with the almost complete cessation of the discharge, that he refused, and returned to his vocation.

We found that after dilating the original opening, he retained his hearing nearly, though not quite, as well as it was through the tube.

The remarkable circumstance in this case is, that the perceptive apparatus and the conducting mechanism should retain their functions after twenty-nine years of apparent disuse. But I apprehend that, although the patient was unconscious of any hearing power in this ear, it was sufficiently responsive to sound-vibrations of a

major character to give the conducting apparatus exercise, and to keep the nerve sensitive. The nature of his business lends color to this view, for its environments abounded in vibrations which would be imparted to every organ in his body. If anything in nature is calculated to arouse a dormant auditory nerve, I should imagine that nothing but Gabriel's trumpet would surpass the clanging of bells and the tooting of whistles.

Some of our authorities speak of imperforate external auditory canals as though they might be of frequent occurrence; but among the records of the Illinois Charitable Eye and Ear Infirmary at Chicago, embracing more than 8,000 cases of diseases of the ear, I find but one case of closure from exostosis, three cases of congenital absence of the meatus, and three of traumatic closure. Of course, we have found numerous cases of narrowing, and various irregularities of the canal, from causes that are not uncommon.

A reference to the following authorities will bear me out in my inference that congenital and traumatic anomalies of the external auditory canal are infrequent in America:

Roosa mentions the occurrence of congenital absence of the canal, but does not treat of traumatic closure. He records no operations to form an external meatus.

Burnett speaks of the possibility of closure, but cites only membranous and osseous formations as the cause. None of my cases were of that kind, two being congenital and two traumatic.

Green's edition of Schwartze speaks of congenital atresia, or imperforation, and stenosis, or constriction, of the canal, as "specially frequent."

Turnbull mentions congenital absence of the meatus, rudimentary auricle, and exostoses, but not as being frequent.

Mittendorf does not treat of the subject.

Jones also ignores it.

Pomeroy does not deal with the subject, although he mentions exostoses.

Sexton's book on the ear is silent on the subject.

Von Troeltsch has seen congenital absence of the meatus, speaks of the difficulties of operation, and discourages it, unless one can with certainty find the bony canal.

Buck has nothing on the subject, but mentions membranous closures.

Congenital cases have been reported by the following authors: Moos, Knapp, Jäger, Welcker, Robb, Hessler, Zaufall, Steinbrügge, Zuckerhandl and Michel.

Politzer's classical work on the ear advises an "operation in congenital atresia of the external auditory meatus only when it has been with certainty ascertained, by careful examination, that it is a case of congenital thin-walled septum at the entrance to the ear. When the atresia extends far inwards, so that the canal cannot be made out, or only a solid cord, operation must be avoided, as irrational and dangerous.

Virchow's Archives, Bd. 30, S. 221, and Bd. 32, S. 518, says: "Congenital anomalies of the external ear and its neighborhood are to be referred to early disturbances in the closure of the first branchial cleft, and are often associated with fistulæ of the other branchial clefts, cleft palate, and other forms of arrest of development in the facial bones—as, for instance, with unilateral atrophy of the face."

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